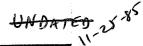
US ERA ARCHIVE DOCUMENT



## DATA EVALUATION RECORD

1. Chemical: Linuron

2. Test Material: 94.8% Active Ingredient

3. Study Type: Acute Toxicity Study on a Coldwater Fish Species

Species Tested: Rainbow Trout

(Salmo gairdneri)

4. Study ID: Hall, C. (August 1985) 96-Hour LC50 (Trout)

Linuron. Report 102-85 Prepared by Haskell Laboratory

for Toxicology and Industrial Medicine. Newark, DE. Submitted to E.I. du Pont de Nemours & Co.,

Wilmington, DE. EPA Accession No. 259206.

5. Reviewed by: Elizabeth E. Zucker

Wildlife Biologist

EEB/HED

Date:

Signature:

Signature:

6. Approved by: Douglas Urban

Acting Supervisory Biologist

EEB/HED

Date:

7. Conclusions:

This study relating the acute toxicity of technical linuron to rainbow trout may not be used to fulfill a guidelines requirement for a 96-hour LC50 test on a coldwater fish species. Test material was insoluble at most of the levels utilized and fish may not have been exposed to nominally designated concentrations. A reliable LC50 cannot be derived. Also, fish were smaller than recommended.

8. Recommendations:

N/A

9. Background:

This study was submitted to fulfill guideline requirements developed from the Registration Standard for Linuron.

10. Discussion of Individual Study:

N/A

## 11. Materials and Methods:

a. Test Procedures - Trout were obtained from Trout Lodge,
McMillan, Washington and held in the laboratory for 70
days prior to testing. Definitive test specifics of
note include:

Fish mean standard length - 3.2 cm.

mean wet weight - 0.38 g

Diluent - laboratory well water

Vessels -glass, rectangular 21 liter aquaria

containing 15 liters diluent

Solvent - DMF (0.02 mL/L maximum)

Ten fish per vessel

Fish not fed 48 hours prior to testing

Temperature - 12.0 to 12.5 °C

D.O., pH measured in low, medium, and high concentrations at the beginning and every 48 hours.

Alkalinity - 80 mg/L CaCO<sub>3</sub>, hardness 69 mg/L CaCO<sub>3</sub>.

Mortality counts made daily

b. Statistical Analysis - The probit method according to Finney (1971) was utilized to calculate an LC50.

## 12. Reported Results:

Mortality Data

		% Dead			
Conc. (mg/L)	24 hrs	48 hrs	72 hrs	96 hrs	
2 1 0.75 0.50 0.25 0.10 control solvent	0 0 0 0 0 0 0	20 0 0 0 0 0 0	90 0 10 0 0 0	100 40 20 10 0 0	
OCT ACTION					

D.O. ranged between 8.6 to 9.6 mg/L pH ranged between 6.9 and 7.3.

A filmy white substance on the surface of the water and a ring on the side of the vessels were observed for concentrations of 0.10 mg/L and greater.

Symptoms of toxicity including lethargy, discoloration, swimming at surface, loss of equilibrium and erratic swimming were noted at levels of 0.5 mg/L and greater.

## 13. Study Author's Conclusions:

The 96-hour LC50 was reported to be 1.0 mg/L (95 percent C.L. of 0.81 mg/L to 1.33 mg/L).

- 14. Reviewer's Evaluation and Interpretation of the Study:
  - a. Test Procedures This study was performed under conditions that generally comply with current testing standards with the following exceptions:
    - 1. Test fish were smaller than recommended.
    - 2. The test material was insoluble in concentrations greater than 0.10~mg/L.
  - b. <u>Statistical Analysis</u> Results of Stephan's program are appended
  - c. Results/Discussion The test material was insoluble at all levels except the lowest. Fish were not exposed to nominally designated concentrations, thus the LC50 cannot be considered reliable.
  - d. Adequacy of Study:
    - 1. Classification: Invalid
    - 2. Rationale: Test material was insoluble at most concentrations. A reliable LC<sub>50</sub> cannot be derived from nominally designated dosage levels. Also, fish were smaller than recommended.
    - 3. Repairability: The registrant would have to determine actual exposure concentrations.

ZUČKER	LINURON	96 HOUR LC50	LINURON	RAINBOW TROUT	
CONC	NUMBER	NUMBER	PERCENT	BINOMIAL	•
· (,	EXPOSED	DEAD	DEAD	PROB. (PERCENT)	
2	10	10	100	.0976563	
1	10	4	40	37.6953	
.75	10	2	20	5.46875	
• 5	10	1	10	1.07422	
.25	10	0	.0	.0976563	
. 1	10	0	0	.0976563	

THE BINOMIAL TEST SHOWS THAT .5 AND 2 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.09187

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN G LC50 95 PERCENT CONFIDENCE LIMITS 2 .214883 1.06111 .838816 1.31178

RESULTS CALCULATED USING THE PROBIT METHOD

TERATIONS G H GOODNESS OF FIT PROBABILITY
7 .270867 1 .788959

SLOPE = 5.6849 95 PERCENT CONFIDENCE LIMITS = 2.7262 AND 8.64361

LC50 = 1.00133 95 PERCENT CONFIDENCE LIMITS = .813696 AND 1.32768

LC10 = .59866 95 PERCENT CONFIDENCE LIMITS = .352102 AND .748355